

Review Article

Clinical and surgical significance of nasal septal hematoma following maxillofacial trauma: a contemporary review

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ABSTRACT

Nasal septal hematoma (NSH), a submucoperichondrial or subperiosteal collection along the nasal septum, is an uncommon but time-critical sequel of nasal trauma. The septal cartilage is avascular and depends on the mucoperichondrium for nutrition. Separation of the mucoperichondrium by a hematoma rapidly leads to ischemia and chondrocyte necrosis. Failure to diagnose and drain can lead to various complications like septal abscess, cartilage loss with saddle-nose deformity, septal perforation, orbital or intracranial infection, and sepsis. The objective of this review was to summarize the contemporary evidence regarding the clinical and surgical significance of nasal septal hematoma, as Maxillofacial surgeons are often the first specialists to evaluate patients with facial trauma in emergency settings.

Keywords: Nasal septal hematoma, Septal abscess, Saddle-nose deformity, Incision and drainage

INTRODUCTION

The nose is the most frequently injured facial structure owing to its prominence. The cartilaginous framework of the nasal septum is fundamental for maintaining nasal airway patency, providing structural support to the nasal dorsum, and preserving overall midfacial symmetry and balance. Nasal trauma is common across all age groups, yet the development of nasal septal hematoma (NSH) is comparatively rare, thus it is frequently missed during the initial clinical evaluation. When a traumatic hematoma elevates the mucoperichondrium from the avascular cartilage, nutrient diffusion stops and the chondrocytes start undergoing ischemic death. If the collection becomes infected and evolves into a nasal septal abscess (NSA) then destruction accelerates and life-threatening complications develop. The clinical and surgical significance of NSH, therefore, lies in the speed with which a seemingly minor injury can progress to deformity or deep infection unless treated urgently.

BASIC ANATOMY

The nasal septum divides the nasal cavity into left and right sections, creating the medial wall for both halves. It consists of both bony and cartilaginous parts, in which the bony components of the septum are primarily formed by two bones: the perpendicular plate of the ethmoid bone at the top and the vomer bone at the bottom, with additional minor contributions from the nasal, frontal, sphenoid, maxilla, and palatine bones. Between these two bony structures, the cartilaginous portion is formed by the quadrangular septal cartilage, which articulates superiorly with the perpendicular plate of the ethmoid and inferiorly with the vomer.^{1,2}

EPIDEMIOLOGY

NSH occurs in all age groups and is primarily caused by interpersonal violence, sports injuries, falls, and road-traffic accidents. Children are at disproportionate risk of delayed diagnosis because symptoms may be nonspecific

and examination is challenging. Undiagnosed pediatric NSH carries long-term consequences, including growth center injury and midfacial developmental disorders. Adults with diabetes, immunosuppression, poor oral hygiene or systemic comorbidities have heightened risk of secondary infection and abscess formation.^{2,3}

PATHOPHYSIOLOGY

Septal cartilage is avascular; it relies on diffusion from the overlying mucoperichondrium. It relies on diffusion from the overlying mucoperichondrium and posteriorly periosteum for nutrition. A hematoma accumulating between these layers mechanically separates and compresses the cartilage, reducing perfusion. Within 48 to 96 hours, ischemia can trigger chondrocyte death and cartilage dissolution. Once superinfection occurs, commonly involving *Staphylococcus aureus*, streptococci, and mixed flora, enzymatic degradation accelerates. In children, additional concern arises from damage to septal growth centers, with potential long-term sequelae (Figure 1).

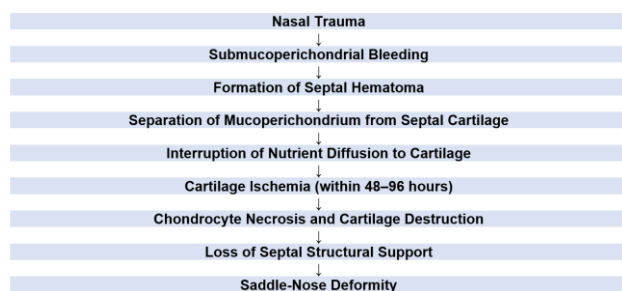


Figure 1: Pathogenesis of nasal septal hematoma leading to saddle-nose deformity.

Table 1: Key clinical features suggestive of nasal septal hematoma.

Feature	Clinical Significance
Bilateral nasal obstruction	Most common presenting complaint
Boggy septal swelling	Pathognomonic sign
Fluctuant mass on palpation	Indicates hematoma collection
Purplish or erythematous septum	Suggests vascular congestion
Fever	Suggests secondary infection
Hyponasal speech	Due to airway obstruction
Facial pain or pressure	Associated with septal distension

CLINICAL PRESENTATION

Patients typically report with nasal obstruction, pain or extreme midface pressure, swelling, a hyponasal voice or rhinorrhea in which fever is suggestive of superinfection. The pathognomonic finding is a soft, fluctuant, erythematous to purplish swelling obliterating the nasal

passage, often bilateral due to submucosal spread across the septum (Table 1).

DIFFERENTIAL DIAGNOSIS

Key differentials include deviated septum (firm; non-fluctuant), septal perforation crusting, turbinate hypertrophy, intranasal hematoma from other sites, and septal neoplasms or cysts.

DIAGNOSIS

Diagnosis is primarily clinical, utilizing a nasal speculum and a topical anesthetic to facilitate visualization. Needle aspiration may confirm a fluid collection and enable culture if purulence is suspected. Imaging has a limited role and is reserved for atypical masses, suspected foreign bodies, or complex fractures; it should not delay drainage when NSH is evident.^{3,4}

MANAGEMENT PRINCIPLES

NSH constitutes an emergency. The therapeutic goals are to evacuate the collection, re-appose mucoperichondrium to cartilage to restore nutrient diffusion, and prevent re-accumulation and infection. These goals are achieved with same-day incision and drainage (I&D), mechanical re-apposition with packing or quilting sutures, and antibiotics.⁵⁻¹⁰

INCISION AND DRAINAGE TECHNIQUE

After vasoconstriction and antisepsis, make a small horizontal incision at the most fluctuant point. Evacuate clot; gently irrigate and break loculations with a blunt instrument. Because NSH is commonly bilateral, inspect and evacuate the contralateral side through a separate incision as needed. Avoid aggressive cartilage manipulation; the goal is clean evacuation and restoration of mucoperichondrial contact.

Re-apposition is as critical as evacuation. Options include anterior nasal packing (e.g., expandable sponge or ribbon gauze) to compress the mucoperichondrium to cartilage, and/or trans-septal quilting sutures that attach the flaps and may obviate bulky packing. A small drain can be fixed for 24 to 48 hours in cases with heavy oozing. Packing or sutures are typically maintained for 24 to 72 hours and removed once no re-accumulation is evident.

ANTIBIOTICS

Empiric antibiotic therapy covering *S. aureus* and *Streptococcus* species is recommended following incision and drainage. Intravenous therapy is appropriate for frank abscess, systemic features, or high-risk hosts (e.g., diabetics, immunosuppressed).

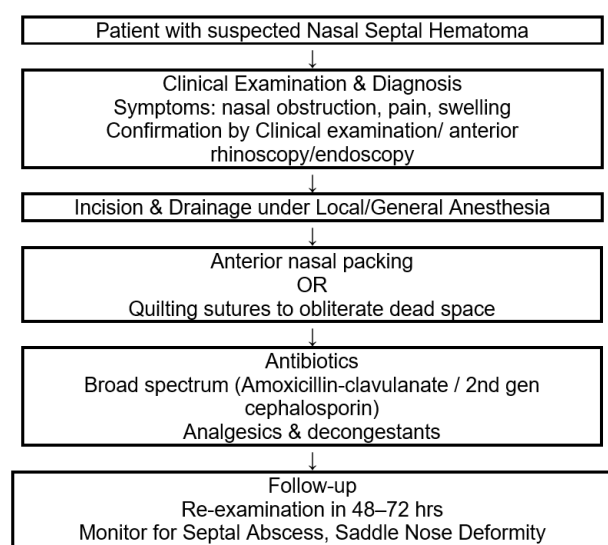


Figure 2: Treatment of nasal septal hematoma in adults.

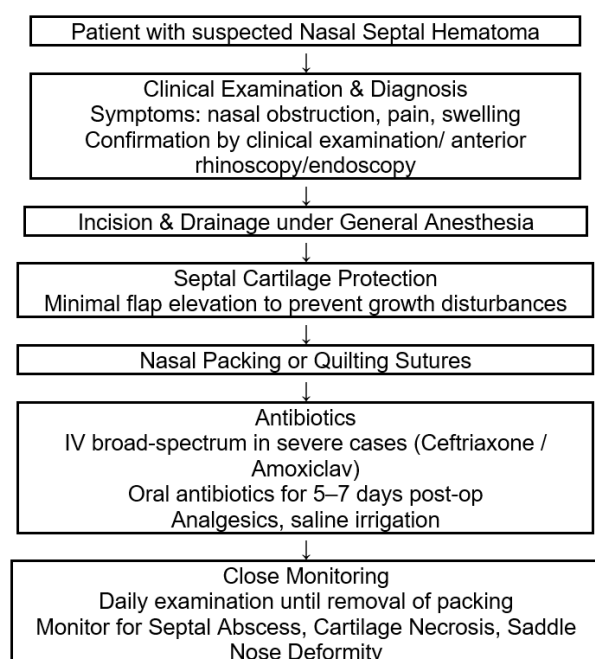


Figure 3: Treatment of nasal septal hematoma in children.

COMPLICATIONS AND THEIR PREVENTION

Early complications include re-accumulation, persistent bleeding, and septal abscess; late complications include septal perforation, saddle-nose deformity, nasal valve collapse, persistent obstruction, olfactory disturbance, and, rarely, orbital cellulitis, cavernous sinus thrombosis, meningitis, or sepsis. Prevention hinges on rapid recognition, definitive I&D with secure re-apposition, appropriate antibiotics, and scheduled reassessment.

OUTCOMES AND PROGNOSIS

When NSH is recognized and drained promptly, most patients recover normal nasal patency and avoid deformity. Delayed presentation, abscess formation, and incomplete re-apposition are the main drivers of adverse outcomes. Pediatric follow-up should include periodic assessment of nasal growth and airway function.

CONCLUSION

Nasal septal hematoma is an uncommon but potentially devastating complication of nasal trauma that demands a high index of clinical suspicion and immediate intervention. Despite its relatively low incidence, delayed or missed diagnosis can rapidly result in septal cartilage ischemia, necrosis, septal abscess formation, saddle-nose deformity, and, in severe cases, life-threatening intracranial or systemic complications. Because the diagnosis is primarily clinical, meticulous examination of the nasal septum should be a routine component of the assessment of every patient presenting with nasal trauma, regardless of the apparent severity of injury. Prompt incision and drainage, effective re-apposition of the mucoperichondrium to the septal cartilage using nasal packing or quilting sutures, and appropriate antimicrobial therapy remain the cornerstones of successful management. Particular vigilance is warranted in children, in whom delayed treatment may adversely affect nasal and midfacial growth. Early recognition, timely surgical intervention, and structured postoperative follow-up are associated with excellent functional and cosmetic outcomes, whereas treatment delays substantially increase morbidity. Continued awareness among emergency physicians, otolaryngologists, maxillofacial surgeons, pediatricians, and primary care clinicians is essential to ensure early diagnosis and prevent the avoidable long-term sequelae of this otherwise readily treatable condition.

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REFERENCES

1. Gupta G, Mahajan K. Nasal septal hematoma. StatPearls. StatPearls Publishing LLC; 2023. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK470247>. Accessed on 3 June 2026.
2. Henry M, Hern HG. Traumatic Injuries of the Ear, Nose and Throat. Emerg Med Clin North Am. 2019;37(1):131-6.
3. Agrawal N, Brayley N. Audit of nasal fracture management in accident and emergency in a district general hospital. J Eval Clin Pract. 2007;13(2):295-7.
4. Kopacheva-Barsova G, Arsova S. The Impact of the Nasal Trauma in Childhood on the Development of

- the Nose in Future. *Open Access Maced J Med Sci.* 2016;4(3):413-9.
5. Rettinger G. Interventions on the nose--management of acute nasal injuries; interventions of the nasal septum. *Laryngorhinootologie.* 2008;87(3):217-23.
6. Rohrich RJ, Adams WP. Nasal fracture management: minimizing secondary nasal deformities. *J Plast Reconstr Surg.* 2000;106(2):266-73.
7. Olsen KD, Carpenter RJ, Kern EB. Nasal septal injury in children. diagnosis and management. *Arch Otolaryngol.* 1980;106:317-20.
8. Wright RJ, Murakami CS, Ambro BT. Pediatric nasal injuries and management. *Facial Plast Surg.* 2011;27:483-90.
9. Friedman M, Tang J. Nasal septal hematoma evacuation. In: Reichman EF, ed. *Reichman's emergency medicine procedures*, 3e. McGraw-Hill Education; 2018.
10. Sofokleous V, Papageorgiou K, Faliagka SA, Chrysovitsiotis G. Subperichondrial haematomas of the nasal alar cartilage. *BMJ Case Rep.* 2021;14:e240150.

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